USDA Service Center Agencies
Geospatial Data Management Team
Data Management Plan For

Bureau of Census TIGER Theme

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I. Purpose and Scope (business case)

A. Purpose

The TIGER/Line files are extracts from the Census Bureau's TIGER® (Topologically Integrated Geographic Encoding and Referencing) database, consisting of selected geographic and cartographic information.

The extracts contain data about the following features:

- Line Features—roads, railroads, hydrography, and transportation and utility lines.
- Boundary Features—statistical (e.g., census tracts and blocks); government (e.g., places and counties); and administrative (e.g., congressional and school districts).
- Landmark Features—point (e.g., schools and churches); area (e.g., parks and cemeteries); and key geographic locations (e.g., apartment buildings and factories).
- The Census 2000 TIGER/Line files include ZIP Code Tabulation Areas (ZCTAsTM).

The census bureaus' TIGER/Line product **does not** contain demographic data. The census provides approximately 400 variables of demographic data in the Census 2000 Summary File 3 datasets.

The TeleAtlas layers replace the TIGER layers. However, the WL (water lines) theme is not as complete as the TIGER data at this time. Users are advised to use the TIGER hydrography layer instead of the TeleAtlas WL.

B. Scope

The Census 2000 TIGER/Line files cover all counties, parishes, boroughs, census areas and equivalent entities for each state, the District of Columbia, Puerto Rico and the Island Areas. The island areas are: American Samoa, Guam, Northern Mariana Islands, Midway Islands and U. S. Virgin Islands.

II. Acquisition

A. Data Source

1. Producer Information
   a. Name

      U.S. Census Bureau

b. Location of Headquarters

U.S. Department of Commerce
U.S. Census Bureau
Geography Division
Geographic Products Management Branch
8903 Presidential Parkway, Room 520 WP I
Upper Marlboro, Maryland 20772

c. Internet Address

http://www.census.gov/

2. Publisher Information

a. Name

U.S. Census Bureau

b. Location of Headquarters

U.S. Department of Commerce
U.S. Census Bureau
Geography Division
Geographic Products Management Branch
4700 Silver Hill Road, Stop 7400
Washington, District of Columbia
20233-7400

c. Internet Address

http://www.census.gov/geo/www/tiger/tiger2k/tgr2000.html

3. Acquisition Information

a. Delivery Media

The online copy of the TIGER/Line files may be accessed without charge. See http://www.census.gov/geo/www/tiger for information on availability on CD-ROM/DVD and associated costs for these products.

b. Download URL

http://www.census.gov/geo/www/tiger

c. Projected Data Availability Schedule

TIGER/Line files are extracted from the Census TIGER database when needed for geographic programs required to support the census and survey programs of the U.S. Census Bureau. No changes or updates will be made to the 2002 TIGER/Line files. Future releases of TIGER/Line files will reflect updates made to the Census TIGER database and will be released under a version numbering system based on the month and year the data is extracted.

B. Standards Information

1. Geospatial Data Standard

a. Standard Name and Steward Information

TIGER/Line Files Technical Documentation

b. Standard Version

Census 2000

c. Standard URL

http://www.census.gov/geo/www/tiger/tiger2k/tiger2k.pdf

2. Metadata Standard

a. Standard Name and Steward Information

Metadata are compliant with:
Federal Geographic Data Committee (FGDC)
Content Standard for Digital Geographic Metadata FGDC
STD-001-1998 Version 2 revised June 1998

b. Description of Metadata Captured

2002 TIGER/Line metadata

http://www.census.gov/geo/www/tlmetadata/tl2002meta.txt

Metadata Sections include:

Identification Information
Data Quality Information
Spatial Data Organization Information
Spatial Reference Information
Entity and Attribute Information
Distribution Information
Metadata Reference Information

c. Metadata Accuracy and Completeness Assessment

Complete.

C. Acquired Data Structure

1. Geospatial Data Format

a. Format (raster, vector, etc.)

Vector

b. Format Name

TIGER® (Topologically Integrated Geographic Encoding and Referencing) database

c. Data Extent

The Census 2000 TIGER/Line files cover all counties, parishes, boroughs, census areas and equivalent entities for each state, the District of Columbia, Puerto Rico and the Island Areas.

d. Horizontal and Vertical Resolution

Latitude_Resolution:	0.000458 Decimal degrees
Longitude_Resolution:	0.000458 Decimal degrees

The information present in these files is provided for the purposes of statistical analysis and census operations only. Coordinates in the TIGER/Line files have six implied decimal places, but the positional accuracy of these coordinates is not as great as the six decimal places suggest. The positional accuracy varies with the source materials used, but generally the information is no better than the established national map Accuracy standards for 1:100,000-scale maps from the U.S. Geological Survey (USGS).

e. Absolute Horizontal and Vertical Accuracy

Tiger maps were developed by the Census bureau from USGS (United States Geological Survey) data initially but since there were originally only for census use they were not developed with high accuracy. The roads locations were not accurately mapped in all cases and the turns and other features were simplified. For example curved sections are represented with a few straight line segments making clover leafs look a little odd. Data is updated in regions and areas as the need arises and money becomes available.

f. Nominal Scale

1:100,000

g. Horizontal and Vertical Datum

In the 1995 and later TIGER/Line® files, NAD83 is the coordinate datum used for the 48 contiguous states, the District of Columbia, Alaska, Puerto Rico, and the Virgin Islands of the United States. WGS84 Regional datums are used for Hawaii and the Pacific Island Areas.

The vertical datum is presumably mean sea level.

h. Projection

The TIGER/Line data are not in a mapping projection even though most of the features were scanned directly from source maps (usually USGS 1:100,000-scale topographic quads) that were in a projection.

For the lower 48 states, most information in TIGER outside the urban centers was derived from the USGS 1:100,000-scale digital line graphs, which were vectorized from the digital scanning of the original artwork. The original art work was in Universal Transverse Mercator (UTM) projection. After the map sheets were scanned, the coordinates were transformed from UTM into projectionless geographic coordinates of latitude and longitude.

For most urban centers, the information in TIGER was derived from the GBF/DIME files produced for the 1980 census. The coordinates in the GBF/DIME files were based on the Census Bureau's Metropolitan Map Series (MMS) map sheets,

originally developed for the 1970 census, and subsequently updated by local planning agencies as well as the Census Bureau. The MMS map sheets developed after the 1970 census were based on USGS 7.5 minute topographic quadrangles, enlarged to 1:19,200 and rescribed.

There were a variety of other sources used in creating the Census TIGER data base. The features from those sources also were stored as latitude and longitude coordinates. Subsequent updates to the Census TIGER® data base also came from a variety of sources, including paper maps annotated in the field and subsequently digitized without rigorous adherence to a projection or coordinate system.

The information in TIGER for Puerto Rico originally was derived by digitizing the USGS 1:20,000 topographic quadrangles. The information for Hawaii was based on the GBF/DIME files and available USGS maps for the state. The information for Alaska and the Island Areas originally was developed by digitizing USGS 1:24,000 and 1:63,360 topographic quadrangles and other available sources, including some developed for use in World War II.

i. Coordinate Units

Decimal degrees.

j. Average Data Set Size

Six files of 600MB

k. Symbology

None.

2. Attribute Data Format

a. Format Name

Fixed Format ASCII as part of TIGER® database

b. Database Size

Part of TIGER® database

3. Data Model

a. Geospatial Data Structure

TIGER® database http://www.gistools.com/ftp/Manual6.pdf

b. Attribute Data Structure

TIGER® database

c. Database Table Definition

TIGER® database

d. Data Relationship Definition

TIGER® database

e. Data Dictionary

The TIGER® database can be linked to the Census Demographics Data Dictionary. This data table is an extract from the complete Summary Tape Files 1A and 3A, reflecting the most commonly used demographic characteristics.

D. Policies

1. Restrictions

a. Use Constraints

None. Acknowledgment of the U.S. Census Bureau would be appreciated for products derived from these files. TIGER, TIGER/Line, and Census TIGER are registered trademarks of the U.S. Census Bureau. ZCTA is a trademark of the U.S. Census Bureau.

b. Access Constraints

None.

c. Certification Issues

No warranty, expressed or implied is made and no liability is assumed by the U.S. Government in general or the U.S. Census Bureau in specific as to the positional or attribute accuracy of the data.

2. Maintenance

a. Temporal Information

The data set applies to a particular calendar year. TIGER/Line files are extracted from the Census TIGER database when needed for geographic programs required to support the census and survey programs of the Census Bureau.

b. Average Update Cycle

As needed or ever 10 years for the decennial census.

E. Acquisition Cost

1. Cooperative Agreement

a. Description of Agreement

None.

b. Status of Agreement

None.

2. Cost to Acquire Data

The online copy of the TIGER/Line files may be accessed without charge. See http://www.census.gov/geo/www/tiger for information on availability on CD-ROM/DVD and associated costs for these products.

The cost is $US 260 for all states and territories at the time of this document.

III. Integration

A. Value Added Process

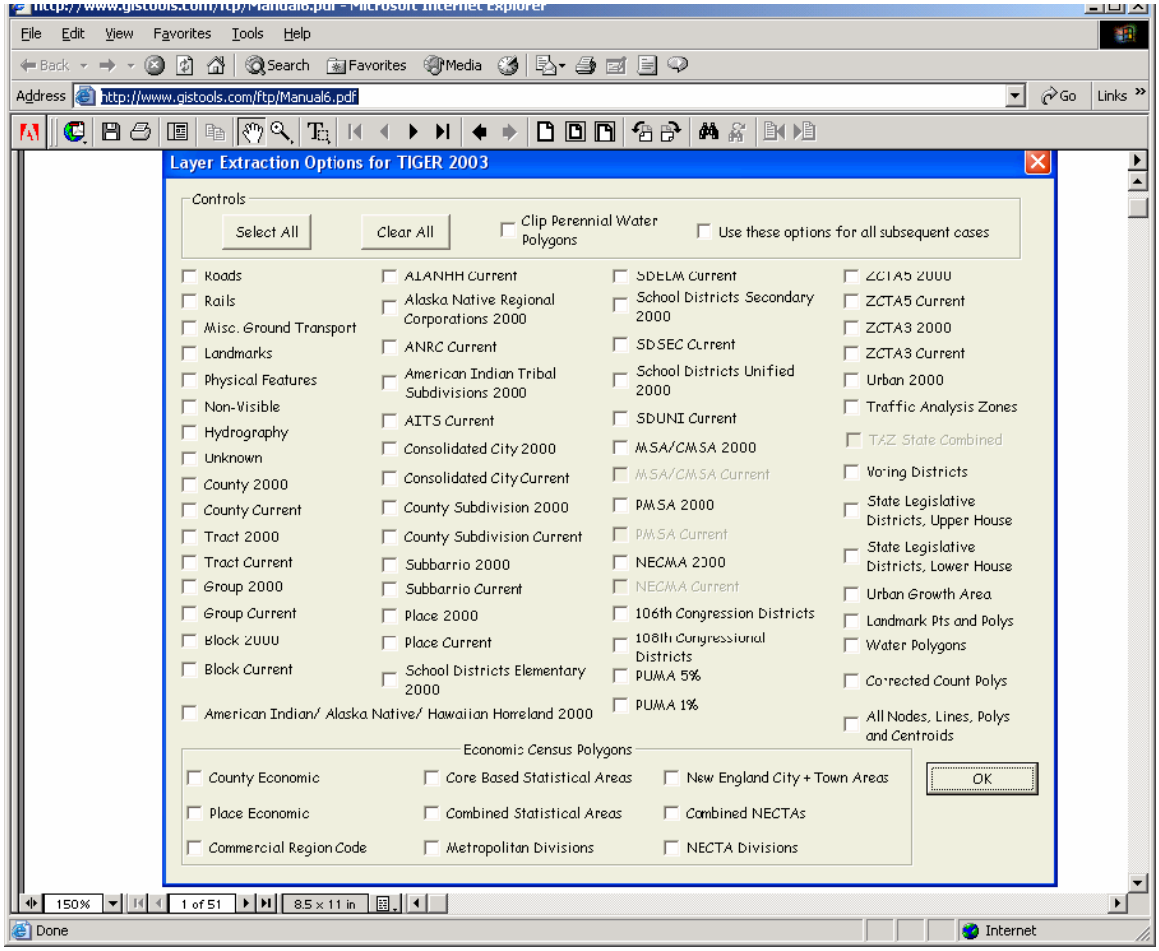
1. Benefit to the Service Center

A continuous database for the US is created so that any area can be extracted as a shape file. A consistently named FIPS code field is created so that counties and states can easily be extracted.

2. Process Model

The Census 2000 TIGER/Line files are converted to shapefile format using the TGR2SHP Translator available from GIS Tools, Inc http://www.gistools.com/ For a description of the TIGER file structure and naming conventions for the downloadable shapefiles, see TGR2SHP User Manual http://www.gistools.com/ftp/Manual6.pdf

The TGR2SHP translator will extract any of the following (roughly 40) layers shown in the following screen shot of the translator:



However, only the following ten TIGER layers are needed by the Service Center Agencies:

Description
TIGER 2002 Roads
TIGER 2000 Hydrography
TIGER 2002 Rail
TIGER 2002 Water Bodies
TIGER 2002 County Boundaries (noclip)
TIGER 2002 Census Tracts
TIGER 2002 Census Block Groups
TIGER 2002 Census Blocks
TIGER 2000 Congressional District **by State**
TIGER 2000 Urban Areas **by State**

a. Flow Diagram

-Run TGR2SHP for each layer for each state to produce shape files by county

-Several TIGER layers do not have a consistently named state and county FIPS code field. Run the ITC-NRCS program named addFIPS2Tiger, which uses the file name to get the state and county FIPS code and add a new column named FIPS_C.

-for each of the 10 TIGER layers above
create an ArcSDE table and layer. Set the scale to 100,000 to round to the nearest meter upon extraction to a shapefile

for each shape file produced by TGR2SHP
add the shape file to the ArcSDE layer
next shape file
next layer

b. Process Description

See above.

3. Technical Issues

a. Tiling

None

b. Compression

None

c. Scale

1:100,000

d. Tonal Matching

None

e. Edge-matching

None

4. Quality Control
   a. Procedures

      None. However, spot checks for completeness are performed.

   b. Acceptance Criteria

      None

5. Data Steward
   a. Name and Organization

      Natural Resources Conservation Service
      National Cartography and Geospatial Center
      P. O. 6567
      501 Felix St., Bldg. 23
      Fort Worth, TX 76115-3405

      Original Data steward will remain:

      U.S. Department of Commerce
      Bureau of the Census
      Geography Division

   b. Responsibilities

      NCGC will apply updates to the data set and notify the Service Centers.

B. Integrated Data Structure

1. Geospatial Data Format
   a. Format (raster, vector, etc.)

      Vector

   b. Format Name

      ESRI ArcSDE

   c. Data Extent

      The extent is the same as the source.

   d. Horizontal and Vertical Resolution

      One meter

   e. Absolute Horizontal and Vertical Accuracy

      The accuracy is the same as the source.

   f. Nominal Scale

      1:100,000

   g. Horizontal and Vertical Datum

The datum is the same as the source.

In the 1995 and later TIGER/Line® files, NAD83 is the coordinate datum used for the 48 contiguous states, the District of Columbia, Alaska, Puerto Rico, and the Virgin Islands of the United States. WGS84 Regional datums are used for Hawaii and the Pacific Island Areas.

Each layer in ArcSDE has a single projection/datum code value. As a result, the datum must be defined as either NAD83 or WGS84. NAD83 is an illegal datum for the Pacific areas west of Hawaii. So, WGS84 should be the assigned datum.

h. Projection

Longitude/Latitude

i. Coordinate Units

Decimal degrees.

j. Symbology

http://www.itc.nrcs.usda.gov/scdm/docs/SPG-StandardforGeospatialSymbology.pdf

2. Attribute Data Format

a. Format Name

ESRI ArcSDE

b. Database Size

Varies by theme

3. Data Model

a. Geospatial Data Structure

ESRI ArcSDE

b. Attribute Data Structure

ESRI ArcSDE

c. Database Table Definition

Varies by theme

d. Data Relationship Definition

ArcSDE

e. Data Dictionary

Varies by theme

C. Resource Requirements

1. Hardware and Software

Unknown

2. Staffing

Unknown.

D. Integration Cost

1. Hardware and Software

GIS Tools, Inc software is $US 75.

2. Staffing

Unknown.

IV. Delivery

A. Specifications

1. Directory Structure

a. Folder Theme Data is Stored In

F:\geodata

2. File Naming Convention

http://www.itc.nrcs.usda.gov/scdm/docs/SPG-GeospatialDataSetFileNamingStandard.pdf

a. List of Theme Files and The File Naming Convention

Shape files:

Poly Files	
map shp	shp file
map dbf	dbf file
map shx	shx file
map sbn	sbn file
map sbx	sbx file

Point Files	
map shp	shp file
map dbf	dbf file
map shx	shx file
map sbn	sbn file
map sbx	sbx file

Line Files	
map shp	shp file
map dbf	dbf file
map shx	shx file
map sbn	sbn file
map sbx	sbx file

Subfolder Name	Mneumonic	Description
transportation	TGRROAD	TIGER 2002 Roads
hydrography	TGRHYD	TIGER 2000 Hydrography
transportation	TGRRAIL	TIGER 2002 Rail
hydrography	TGRWAT	TIGER 2002 Water Bodies
government_units	TGRCNTY	TIGER 2002 County Boundaries (noclip)
census	TGRTRACT	TIGER 2002 Census Tracts
census	TGRBLKG	TIGER 2002 Census Block Groups
census	TGRBLKS	TIGER 2002 Census Blocks
government_units	TGRCDC	TIGER 2000 Congressional District **by State**

Subfolder Name	Mneumonic	Description
census	TGRURB	TIGER 2000 Urban Areas **by State**

B. User Information

1. Accuracy Assessment

a. Alignment with Other Theme Geospatial Data

Data aligns well with other TIGER data but will not align with data at a scale of better than 1:100,000

b. Content

The content is the same as the source.

2. Appropriate Uses of the Geospatial Data

a. Display Scale

1:100,000

b. Plot Scale

1:100,000

c. Area Calculations

Accurate only to source scale

d. Decision Making

None

C. Maintenance and Updating

1. Recommendations and Guidelines

a. Original data location and structure

Natural Resources Conservation Service
National Cartography and Geospatial Center
P. O. 6567
501 Felix St., Bldg. 23
Fort Worth, TX 76115-3405

The integrated database is stored in an ArcSDE database. The data is delivered to the Service Center.

b. Update Cycle

Update data when Census releases new TIGER files

c. Availability

Make the updates available as soon as the database is updated.

d. Change Control

This is to be determined.